REMARKS/ARGUMENTS

By this Amendment, claims 1, 17-19 and 27 are amended, and claims 30-33 are added. Claims 1-4, 6-9 and 12-33 are pending.

Favorable reconsideration is respectfully requested in view of the foregoing amendments and the following remarks.

Support for the amendments is apparent in the original specification at, e.g., page 11, lines 25-26 ("the intercalating agent is not covalently bound to the probe"), and in Paragraphs 0023 to 0035 of U.S. Patent App. Pub. No. 2002/0031775 A1, which corresponds to the U.S. Patent Application having the Attorney Docket No. E1047/20057 incorporated by reference into the present specification at page 10, lines 15-19 and page 4, lines 5-6.

Claims 1-4, 6, 8, 17-18, 20, 22, 24-25 and 27 stand rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by Kukreti et al. (Nucleic Acids Research, 1997, 25(21): 4264-4270).

Kukreti et al. fails to identically disclose each and every limitation of the claimed invention. Each of the base claims requires the first stimulus and the second stimulus to be photonic or electronic, provided that at least one of the first stimulus and the second stimulus is photonic, and that when both are photonic, an intermediate electronic stimulus is applied. Thus, all of the claims require at least one electronic stimulus (first, second and/or intermediate) applied to the test sample.

The Final Rejection states in the paragraph bridging pages 5-6 that Kukreti's disclosure of adjusting the temperature of the test sample using an electrically heated water bath (the

"Haake P2 water bath" and the "Haake PG 20 thermoprogrammer" discussed in the paragraph bridging the left and right columns of page 4265 of Kukreti et al.) constitutes an intermediate "electronic stimulus" as presently claimed.

Although it is the PTO's policy to afford claim terms their "broadest reasonable interpretation" (MPEP § 2111), such an interpretation "must also be consistent with the interpretation that those skilled in the art would reach." *Id.*, citing *In re Cortright*, 165 F.3d 1353, 1359, 49 USPQ2d 1464, 1468 (Fed. Cir. 1999). See also *Ex Parte Detrick*, 2002 WL 32334417 (BPAI 2002) (the term "applied", given its broadest reasonable interpretation consistent with the specification and the claims, was construed during prosecution in accordance with its ordinary dictionary meaning to mean "to place in contact, lay or spread on."). A person of ordinary skill in the art would not interpret the recited limitation "applying an electronic stimulus to a test sample" to encompass heating the test sample by thermal conduction in a water bath regardless of whether the water bath temperature is controlled by electronic means.

In essence, the Examiner argues that the claims do not specify "a direct electrical contact between the sample and a source of electricity" and therefore the claims allegedly read on applying an electronic stimulus to a first object (an electric heating element) in contact with a second object (an electric heating element housing made of material that is thermally conducting and electrically insulating) in contact with a third object (the water) in contact with a fourth object (the sample container) in contact with the test sample, regardless of the fact that the heating element is designed to convert the electrical stimulus into a thermal stimulus and the

heating element housing is designed to prevent any electricity from passing into the water and causing an electrocution hazard.

Thus, the electronic stimulus is not directly or indirectly applied to the test sample. The assertion in the Final Rejection that the claims do not require "direct electrical contact" misses the point. The claims require an ***electronic*** stimulus applied to the test sample. The electronic stimulus of Kukreti et al. never makes it beyond the electric heating element, which is several objects removed from the sample.

Interpreting the "electronic stimulus" limitation as proposed in the Final Rejection is clearly unreasonable and inconsistent with the plain meaning of the limitation in light of the present disclosure. Thus, the Final Rejection fails to show that Kukreti et al. teaches applying an electronic stimulus to a test sample, and there is no *prima facie* case of anticipation.

Moreover, Kukreti et al. does not teach the complexes specified in clause (e) of base claim 1. Kukreti et al. discloses Hoogsteen bonding based triplexes.

Accordingly, reconsideration and withdrawal of the anticipation rejection over Kuketi et al. are respectfully requested.

Claims 7, 9, 12-16, 19, 21, 23, 26, 28 and 29 stand rejected under 35 U.S.C. § 103(a) as allegedly being obvious over Kukreti et al. in view of Meade et al. (U.S. Patent No. 6,071,699).

Meade et al. is cited to remedy the failure of Kukreti et al. to teach the additional features of dependent claims 7, 9, 12-16, 19, 21, 23, 26, 28 and 29. According to the Final Rejection at pages 7-8, a person of ordinary skill in the art would have been motivated to modify the teachings of Kukreti et al. with the labels and detection of Meade et al. for the expected benefits

of obtaining two to four orders of magnitude improvement in signal-to-noise as taught by Meade et al.

Meade et al. relates to nucleic acid mediated electron transfer (see Title). Electron transfer is accomplished through electron donor and electron acceptor labels covalently bound to a probe comprising a nucleic acid sequence (see Abstract). The Final Rejection cites column 23, lines 35-67 of Meade et al. as teaching "stimulation and detection via differing combinations of light and/or electronics and as such they teach the first and/or second stimuli and detection of [Kukreti et al.] is electronic or photonic as claimed." (Citations omitted.)

Kukreti et al. discloses that Hoogsteen bonding based triplexes are stabilized by a covalently bound intercalating agent, acridine. See Kukreti et al. at p. 4269, conclusion. A person of ordinary skill in the art would have lacked reasonable motivation to combine the teachings of Kukreti et al. with the teachings of Meade et al., which teaches away from the use of intercalating agents, which are said to have a destabilizing effect on base pairing, the transfer of electrons and the identification of mismatches (Meade et al. at column 18, lines 16-19).

Moreover, assuming for the sake of argument that the teachings of Meade et al. could be properly combined with those of Kukreti et al., the proposed combination of reference teachings still fails to disclose or suggest the specified types of duplex, triplex and quadruplex of base claim 1.

Accordingly, reconsideration and withdrawal of the obviousness rejection are respectfully requested.

New claims 30-33 further distinguish over the applied art. Claim 30 specifies that the at least one label is not covalently bound to the probe or target, further distinguishing the invention from Kukreti et al., which requires covalently bound labels. Claim 31 specifies that the at least one label is an intercalating agent, further distinguishing the invention from Kukreti et al., which requires intercalating labels. Claim 32 combines the limitations of claims 30 and 31, further distinguishing the invention from Kukreti et al. Claim 33 depends from claim 32, and further specifies that the first stimulus is directly applied to the test sample and the second stimulus is directly applied to the first stimulated test sample.

For at least the reasons set forth above, it is respectfully submitted that the above-identified application is in condition for allowance. Favorable reconsideration and prompt allowance of the claims are respectfully requested. Should the Examiner believe that anything further is desirable in order to place the application in even better condition for allowance, the Examiner is invited to contact Applicants' undersigned attorney at the telephone number listed below.

Respectfully submitted,

CAESAR, RIVISE, BERNSTEIN,
COHEN & POKOTILOW, LTD.

March 24, 2005

By _____
David M. Tener
Registration No. 37,054
Customer No. 03000
(215) 567-2010
Attorneys for Applicants

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